

**ABSTRACT:**

5 In the infrared radiation element (A), a heat insulating layer 2, which has  
sufficiently smaller thermal conductivity than a semiconductor substrate 1, is  
formed on a surface in the thickness direction of the semiconductor substrate 1,  
and a heating layer 3, which is in the form of a lamina (plane) and has larger  
thermal conductivity and larger electrical conductivity than the heat insulating layer  
2, is formed on the heat insulating layer 2, and a pair of pads 4 for energization are  
10 formed on the heating layer 3. The semiconductor substrate 1 is made of a  
silicon substrate. The heat insulating layer 2 and the heating layer 3 are formed  
by porous silicon layers having different porosities from each other, and the  
heating layer 3 has smaller porosity than the heat insulating layer 2. By using the  
infrared radiation element (A) as an infrared radiation source of a gas sensor, it  
15 becomes possible to extend a life of the infrared radiation source.